N THE CLAIMS:

Please CANCEL claims 1-14, 17 and 18 without prejudice to or disclaimer of the recited subject matter.

Please AMEND claim 15, and ADD new claims 24-39, as follows. For the Examiner's convenience, all claims currently pending in this application have been reproduced below:

1-14. (Canceled)

15. (Currently Amended) An electron optical system having a plurality of electron lenses, said system comprising:

a first electron optical system array having electrodes with a plurality of rectangular apertures; and

a second electron optical system array having electrodes with a plurality of rectangular apertures, said first and second electron optical system arrays being arranged along an optical axis,

wherein a long side of each aperture of said first electron optical system array is perpendicular to a long side of each aperture of said second electron optical system array.

16. (Original) The system according to claim 15, wherein each of said first and second electron optical system arrays comprises:

an upper electrode having a plurality of apertures;

a plurality of middle electrodes each having an aperture;

a lower electrode having a plurality of apertures; and

a shield interposed between said adjacent middle electrodes.

17. (Canceled)

18. (Canceled)

19. (Original) A charged-particle beam exposure apparatus comprising:

a charged-particle source for emitting a charged-particle beam;

a first electron optical system which has a plurality of electron lenses and forms a plurality of intermediate images of said charged-particle source by the plurality of electron lenses; and

a second electron optical system for projecting on a substrate the plurality of intermediate images formed by said first electron optical system,

said first electron optical system including:

a first electron optical system array having electrodes with a plurality of rectangular apertures; and

a second electron optical system array having electrodes with a plurality of rectangular apertures, said first and second electron optical system arrays being arranged along an optical axis,

wherein a long side of each aperture of said first electron optical system array is perpendicular to a long side of each aperture of said second electron optical system array.

20. (Withdrawn) A device manufacturing method comprising the steps of:

installing a plurality of semiconductor manufacturing apparatuses including a charged-particle beam exposure apparatus in a factory; and

manufacturing a semiconductor device by using the plurality of semiconductor manufacturing apparatuses,

the charged-particle beam exposure apparatus having:

a charged-particle source for emitting a charged-particle beam;

a first electron optical system which has a plurality of electron lenses and forms a plurality of intermediate images of the charged-particle source by the plurality of electron lenses; and

a second electron optical system for projecting on a substrate the plurality of intermediate images formed by the first electron optical system,

the first electron optical system including:

a plurality of electrodes which have apertures for transmitting the charged-particle beam and are arranged in one plane; and

a shield interposed between the adjacent electrodes.

21. (Withdrawn) The method according to claim 20, further comprising the steps of:

connecting the plurality of semiconductor manufacturing apparatuses by a local area network;

connecting the local area network to an external network of the factory;

acquiring information about the charged-particle beam exposure apparatus from a database on the external network by using the local area network and the external network; and

controlling the charged-particle beam exposure apparatus on the basis of the acquired information.

22. (Withdrawn) A semiconductor manufacturing factory comprising:

a plurality of semiconductor manufacturing apparatuses including a charged-particle beam exposure apparatus;

a local area network for connecting said plurality of semiconductor manufacturing apparatuses; and

a gateway for connecting the local area network to an external network of said semiconductor manufacturing factory,

said charged-particle beam exposure apparatus having:

a charged-particle source for emitting a charged-particle beam;

a first electron optical system which has a plurality of electron lenses and forms a plurality of intermediate images of the charged-particle source by the plurality of electron lenses; and

a second electron optical system for projecting on a substrate the plurality of intermediate images formed by said first electron optical system,

said first electron optical system including:

a plurality of electrodes which have apertures for transmitting the charged-particle beam and are arranged in one plane; and

a shield interposed between said adjacent electrodes.

23. (Withdrawn) A maintenance method for a charged-particle beam exposure apparatus, comprising the steps of:

preparing a database for storing information about maintenance of the charged-particle beam exposure apparatus on an external network of a factory where the charged-particle beam exposure apparatus is installed;

connecting the charged-particle beam exposure apparatus to a local area network in the factory; and

maintaining the charged-particle beam exposure apparatus on the basis of the information stored in the database by using the external network and the local area network,

the charged-particle beam exposure apparatus having:

a charged-particle source for emitting a charged-particle beam;

a first electron optical system which has a plurality of electron lenses and forms a plurality of intermediate images of the charged-particle source by the plurality of electron lenses; and

a second electron optical system for projecting on a substrate the plurality of intermediate images formed by the first electron optical system,

the first electron optical system including:

a plurality of electrodes which have apertures for transmitting the charged-particle beam and are arranged in one plane; and

a shield interposed between the adjacent electrodes.

24. (New) An electron optical system having a plurality of electron lenses, the system comprising:

a plurality of electrodes which have rectangular apertures for transmitting a charged-particle beam and are arranged in one plane; and

a shield interposed between adjacent electrodes.

25. (New) An electron optical system having a plurality of electron lenses, the system comprising:

an upper electrode having a plurality of rectangular apertures;

a plurality of middle electrodes each having a rectangular aperture;

a lower electrode having a plurality of rectangular apertures; and

a shield interposed between adjacent middle electrodes,

wherein said upper electrode, middle electrodes, and lower electrode are arranged along an optical axis.

26. (New) The system according to claim 25, wherein each of said middle electrodes has a plurality of rectangular apertures, and a long side of each aperture has an angle of not less than 0° to less than 180° in a direction along which the plurality of apertures are aligned.

27. (New) An electron optical system for a charged-particle beam, the system comprising:

a substrate having a plurality of apertures for transmitting the charged-particle beam and a plurality of electrodes; and

a conductive shield interposed between adjacent electrodes.

28. (New) The system according to claim 27, wherein the conductive shield is arranged to prevent influence of a field generated by the electrode from transmitting between one side of the conductive shield and another side of the conductive shield.

29. (New) The system according to claim 27, wherein the conductive shield extends in a direction substantially parallel to a transmission direction of the charged-particle beam.

30. (New) The system according to claim 27, wherein the conductive shield is insulated from the adjacent electrodes.

31. (New) The system according to claim 27, wherein a space or an insulator is provided between the adjacent electrodes.

32. (New) The system according to claim 27, wherein the apertures are circular or rectangular.

33. (New) An electron optical system including a plurality of electron lenses, the system comprising:

upper and lower substrates each having a plurality of apertures for transmitting a charged-particle beam;

a plurality of middle substrates each having at least one aperture for transmitting the charged-particle beam and at least one electrode, the plurality of middle substrates being arranged between the upper substrate and the lower substrate in a transmission direction of the charged-particle beam; and

a conductive shield interposed between adjacent middle substrates.

34. (New) The system according to claim 33, wherein the conductive shield is electrically coupled to the upper substrate and the lower substrate.

35. (New) The system according to claim 33, wherein a plurality of apertures are arrayed in the middle substrate.

36. (New) An exposure apparatus which performs patterning using a charged-particle beam, the apparatus comprising:

a charged-particle beam source for emitting a charged-particle beam; and

an electron optical system including a substrate having a plurality of apertures for transmitting the charged-particle beam and a plurality of electrodes, and a conductive shield interposed between adjacent electrodes.

37. (New) A device manufacturing method comprising the steps of:

performing a patterning process on a sample using an exposure apparatus defined in claim 36; and

developing the sample subjected to the patterning process.

38. (New) An exposure apparatus which performs patterning using a charged-particle beam, the apparatus comprising:

a charged-particle beam source for emitting a charged-particle beam; and

an electron optical system including upper and lower substrates each having a plurality of apertures for transmitting the charged-particle beam, a plurality of middle substrates each having at least one aperture for transmitting the charged-particle beam and at least one

electrode and arranged between the upper substrate and the lower substrate in a transmission direction of the charged-particle beam, and a conductive shield interposed between adjacent middle substrates.

39. (New) A device manufacturing method comprising the steps of:

performing a patterning process on a sample using an exposure apparatus defined in claim 38; and

developing the sample subjected to the patterning process.